Booster High Level RF Controls Network Configuration

This document describes the network configuration of the Internet Rack Monitors (IRM) and VME crates that control the Booster High Level RF Systems. It will also attempt to describe how a request for data for a device is handled.

First in reference to Drawing-1, the network is configured to handle the activity that could be coming out of each IRM. Each IRM is capable of delivering frames at a 15 Hz. rate. Because of the characteristics of the ethernet bus, and having the IRM's synchronized to a clock event, it is possible to cause large amounts of collisions on the network. These collisions could cause data to arrive late, and therefore be labeled as an error. To temporarily solve this problem a high speed bridge (switch) was used to isolate the activity between the IRM's and the Acnet server sending data back to the consoles. The final solution will be, each IRM will have a separate 10 Mhz link to a high-speed switch which in turn will be connected to the router through some ATM (~100 Mhz) backbone. The typical path for a request is as follows.

1. Acnet console wants to request data for a device (RF01GE).
2. Gets the front end for that device (BRFVCW).
3. Sends a request to the front end server through router.
4. Front end server receives request and determines to send a request to BRF01 through the switch.
5. BRF01 receives the request and sends the data back to the server (BRFVCW).
6. Server receives the data and sends it back to console.

Although this seems cumbersome, it is obvious if a device from each station was requested, the amount of traffic to the console would be large and could effect overall performance of the network. Also load down the router so it would not be able to pass the traffic. This allows each station to send the data to the server and it can combine them and send one frame back to the console through the router.

Here is an example of how the information is put in the central data base.

The device is defined with the server front end (BRFVCW).

(Note: This is only part of a D80 display.)

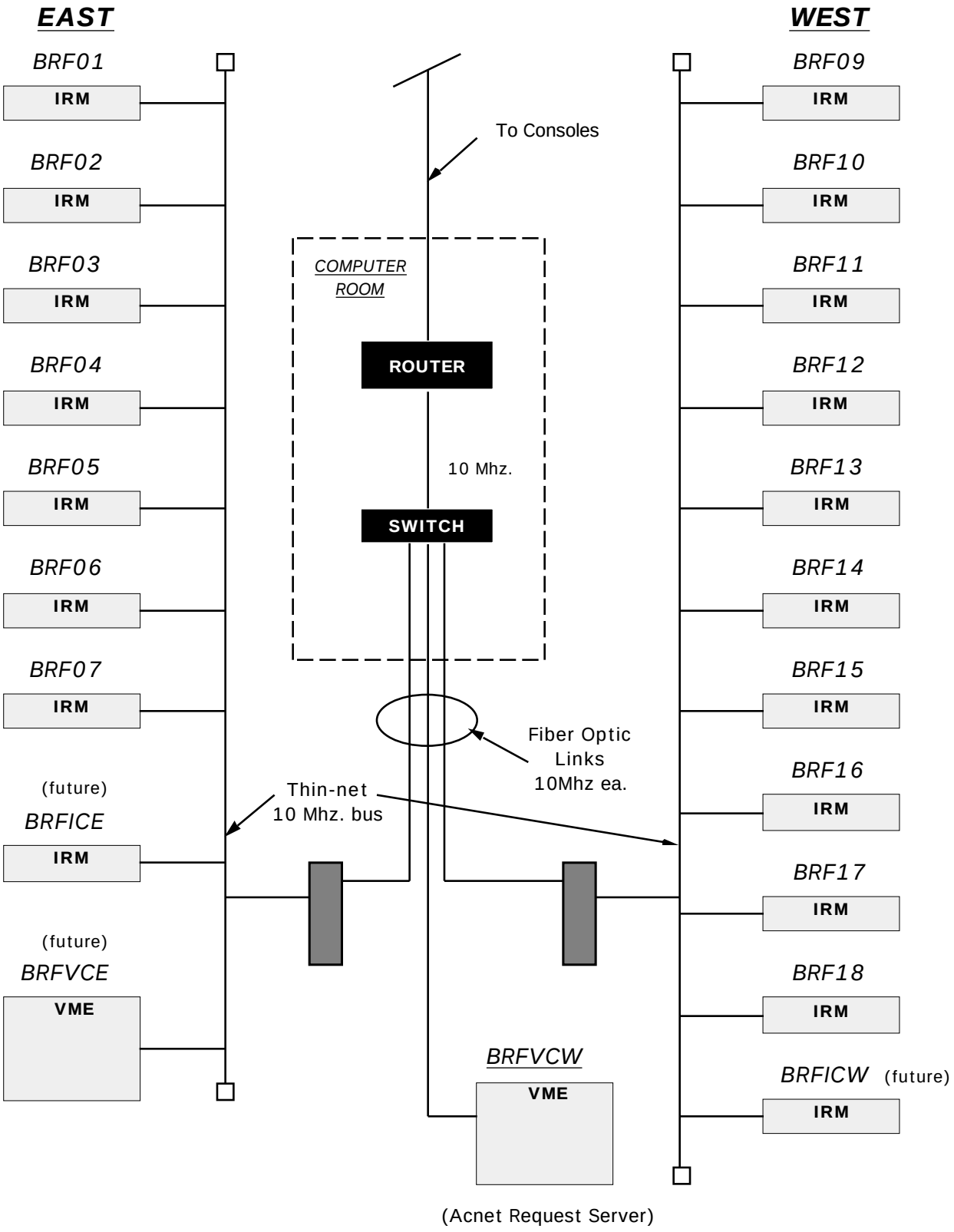
```
D80                Database Dump:  Summary page

   Analog     Digital     Reading     Setting     Summary     Dump
   Control    Status      Save/Restore            Family

General:
Device Name:<B:RF01GE>    Device Index:(    22711)
Descriptive text:(RF Gap Envelope - PP/A  )  node(BRFVCW 135 10 )
Analog Alarm Information:
Alarm Bypass   ( NO     ) tolerance1( 42.876 ) alarm present( NO
Beam Abort     (YES     ) tolerance2( 52.643 )
Abort Inhibit  ( NO     ) tolerance type(NOM/TOL )
Reading Information:
```

Here is some information about the reading property. Notice the SSDN (0011/06B1/0117/0002)! The SSDN is sent to the server front end. The server knows that this device is on channel 117 of node 06B1 (BRF01), so it then sends a 1 Hz. request to that node. Then the node starts sending data back to the server at a 1 Hz. rate.

```
D80                Database Dump:  Reading page

   Analog     Digital     Reading     Setting     Summary     Dump
   Control    Status      Save/Restore            Family


General:High Level RF device
Device Name:<B:RF01GE>    Device Index:(    22711)

Reading Block:
SSDN(0011/06B1/0117/0002)
default data size(      2)  maximum array size(      2)
Frequency Time Descriptor (FTD) (     1 HZ)
```

Drawing 1:

Booster HLRF Network Configurat



R. Florian 7/30/96